BALVER ZINN®

Safety Data Sheet

according to Regulation (EC) No 1907/2006

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Lead Alloy with Tin, Silver and/or Antimony

Further trade names

This MSDS covers the following products:
PbSn7
PbSn8
PbSn10
PbSb5
PbAg2
PbSn5Ag2
PbSn5Sb2

Pb >70% Sn 0-30% Ag 0-5% Sb 0-15%

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

soft solder
Anodes for electroplating

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name:	BALVER ZINN Josef Jost GmbH & Co. KG	
Street:	Blintroper Weg 11	
Place:	D-58802 Balve	
Telephone:	+49 2375 915 - 0	Telefax: +49 2375 915 - 1700
e-mail:	cia@balverzinn.com	
e-mail (Contact person):	SDS@balverzinn.com	
Internet:	www.balverzinn.com	
Responsible Department:	Product Safety Department +49 2375 915-199 Only available during office hours.	

1.4. Emergency telephone number:

+49 700 24 112 122 (Contract-ID: BZW)
from USA / Canada please call 011 49 700 24 112 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Repr. 1A; H360FD
Lact.; H362
STOT RE 1; H372

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

lead massive [particle diameter >= 1 mm]

Signal word: Danger

Pictograms:

Hazard statements

H360FD	May damage fertility. May damage the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P263	Avoid contact during pregnancy and while nursing.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P501	Dispose of contents/container to local/regional/national/international regulations.

Special labelling of certain mixtures

Restricted to professional users.

Additional advice on labelling

For this product, a hazard label is not required according to section 1.3.4 of Annex I of the CLP regulation.

2.3. Other hazards

For information or further instructions, see also section 11 or 12.
No risks worthy of mention. Please observe the information on the safety data sheet at all times.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7439-92-1	lead massive [particle diameter >= 1 mm]			> 70 %
	231-100-4	082-014-00-7	01-2119513221-59	
	Repr. 1A, Lact., STOT RE 1; H360FD H362 H372			
7440-31-5	tin			0 - 30 %
	231-141-8		01-2119486474-28	
7440-36-0	Antimon			0 - 15 %
	231-146-5		01-2119475609-24	
7440-22-4	silver			0 - 5 %
	231-131-3		01-2119555669-21	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7439-92-1	231-100-4	lead massive [particle diameter >= 1 mm]	> 70 %
	inhalation: LC50 = > 5 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 2000 mg/kg		

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7440-31-5	231-141-8	tin	0 - 30 %
	inhalation: LC50 = (>4,75) mg/l (dusts or mists); dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg		
7440-22-4	231-131-3	silver	0 - 5 %
	inhalation: LC50 = >5,16 mg/l (dusts or mists); dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg		

Further Information

Contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: lead massive [particle diameter >= 1 mm] CAS n°: 7439-92-1

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

No special measures are necessary.
The melted product can cause severe burns. After contact with molten product, cool skin area rapidly with cold water. Burns caused by molten material must be treated clinically.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.
In case of metal fire: Sand, Extinguishing powder, D-powder

Unsuitable extinguishing media

Extinguishing media which must not be used for safety reasons:
Water, High power water jet., Water spray jet

5.2. Special hazards arising from the substance or mixture

Can be released in case of fire: Metal oxide smoke, toxic, Lead oxide

5.3. Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
In case of fire: Wear self-contained breathing apparatus.

Additional information

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

For non-emergency personnel

Wear personal protection equipment (refer to section 8).

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary.

6.3. Methods and material for containment and cleaning up

For containment

Take up mechanically.
Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations.

Other information

Take up mechanically, placing in appropriate containers for disposal.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation.
Do not inhale dust/fumes.
Wear suitable protective clothing. (See section 8.)

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Wash hands before breaks and after work. Do not eat, drink, smoke or sneeze at the workplace.

Further information on handling

General protection and hygiene measures: See section 8.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

No special measures are necessary.

Hints on joint storage

Do not store together with: Explosives, Radioactive substances, Infectious substances.

Further information on storage conditions

Keep the packing dry and well sealed to prevent contamination and absorbtion of humidity.
Recommended storage temperature: 20°C
Protect against:Frost, UV-radiation/sunlight, Heat, moisture.

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
7440-36-0	Antimony	-	0.5		TWA (8 h)	
7439-92-1	Lead	-	0.15		TWA (8 h)	
7440-22-4	Silver (metallic)	-	0.1		TWA (8 h)	
7440-31-5	Tin (Metal)	-	2		TWA (8 h)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
7439-92-1	Lead	Lead	70 µg/100 ml	Blood	Not critical

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
7440-31-5	tin			
Consumer DNEL, long-term		inhalation	systemic	3,476 mg/m³
Consumer DNEL, acute		inhalation	systemic	3,476 mg/m³
Worker DNEL, long-term		inhalation	systemic	11,75 mg/m³
Worker DNEL, acute		inhalation	systemic	11,75 mg/m³
Consumer DNEL, long-term		dermal	systemic	80 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	133,3 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	80 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	133,3 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	80 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	80 mg/kg bw/day
7440-22-4	silver			
Worker DNEL, long-term		inhalation	systemic	0,1 mg/m³
Consumer DNEL, long-term		inhalation	systemic	0,04 mg/m³
Consumer DNEL, long-term		oral	systemic	1,2 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
7439-92-1	lead massive [particle diameter >= 1 mm]	
Freshwater		0,0024 mg/l
Marine water		0,0033 mg/l
Freshwater sediment		186 mg/kg
Marine sediment		168 mg/kg
Secondary poisoning		10,9 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,1 mg/l
Soil		212 mg/kg
7440-22-4	silver	
Freshwater		0,00004 mg/l
Marine water		0,00086 mg/l
Micro-organisms in sewage treatment plants (STP)		0,025 mg/l
Freshwater sediment		438,13 mg/kg

PNEC values

CAS No	Substance	
Environmental compartment		Value
Marine sediment		438,13 mg/kg
Soil		1,41 mg/kg

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust. Provide adequate ventilation as well as local exhaustion at critical locations.
Process within closed systems.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Wear suitable gloves.
The selected protective gloves have to satisfy the specifications of EU Directive EC/2016/425 and the standard EN 374 derived from it.
In the case of wanting to use the gloves again, clean them before taking off and air them well. Before using check leak tightness / impermeability.

Skin protection

Protective clothing.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.
Provide adequate ventilation as well as local exhaustion at critical locations.
Respiratory protection necessary at: Exceeding exposure limit values smoke generation Insufficient ventilation
Suitable respiratory protective equipment: Particle filter device (EN 143) Type: P3
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Environmental exposure controls

This material and its container must be disposed of in a safe way.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid	
Colour:	metallic, grey	
Odour:	odourless	
		Test method
Melting point/freezing point:	Pb90Sn10: 268-302	N/A
Boiling point or initial boiling point and boiling range:		N/A
Flammability		
Solid/liquid:	not determined	
Lower explosion limits:	not determined	
Upper explosion limits:	not determined	
Flash point:	not determined	
Auto-ignition temperature:	not determined	

Decomposition temperature:	not determined	
pH-Value:	not applicable	
Viscosity / kinematic:	not determined	
Water solubility:	The study does not need to be conducted because the substance is known to be insoluble in water.	

Solubility in other solvents

The study does not need to be conducted because the substance is known to be insoluble in water.

Vapour pressure:	not determined	
Density:	Pb90Sn10: 10,9	N/A
Bulk density:	not determined	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not: Explosive

Self-ignition temperature

Solid:	not determined

Oxidizing properties

none

Other safety characteristics

Solid content:	not determined
Sublimation point:	not determined
Softening point:	not determined
Viscosity / dynamic:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

No information available.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

Can be released in case of fire: Metal oxide smoke, toxic, Lead oxide

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicocinetics, metabolism and distribution

No information available.

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7439-92-1	lead massive [particle diameter >= 1 mm]				
	oral	LD50 > 2000 mg/kg	Rat	Study report (2003)	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2003)	OECD Guideline 402
	inhalation (4 h) dust/mist	LC50 > 5 mg/l			
7440-31-5	tin				
	oral	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) dust/mist	LC50 (>4,75) mg/l	Rat	ECHA Dossier	
7440-22-4	silver				
	oral	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) dust/mist	LC50 >5,16 mg/l	Rat	ECHA Dossier	

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

May damage fertility. May damage the unborn child. (lead massive [particle diameter >= 1 mm])
May cause harm to breast-fed children. (lead massive [particle diameter >= 1 mm])
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (lead massive [particle diameter >= 1 mm])

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available

SECTION 12: Ecological information

12.1. Toxicity

No data available

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h][d]	Species	Source	Method
7439-92-1	lead massive [particle diameter >= 1 mm]					
	Acute fish toxicity	LC50 1,17 mg/l	96 h	Oncorhynchus mykiss	Publication (1976)	Acute bioassays
	Acute algae toxicity	ErC50 0,123 mg/l	72 h	Raphidocelis subcapitata	Publication (2014)	OECD Guideline 201
	Acute crustacea toxicity	EC50 0,59683 mg/l	48 h	Ceriodaphnia dubia	Study report (2010)	other: USEP
	Fish toxicity	NOEC 0,0293 mg/l	30 d	Pimephales promelas	Study report (2010)	other: USEPA methods for acute and chron
	Crustacea toxicity	NOEC 0,1538 mg/l	25 d	Alona rectangula	Ecotoxicology, 15: 425-436 (2006)	chronic test with lead to cladocerans

12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

BCF

CAS No	Chemical name	BCF	Species	Source
7439-92-1	lead massive [particle diameter >= 1 mm]	7400	Daphnia magna	Ecotoxicology and En

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
The aforementioned statement applies to substances contained in the product with a minimum content of 0.1%.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary. Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.
Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

List of Wastes Code - residues/unused products

160304 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes other than those mentioned in 16 03 03

List of Wastes Code - used product

160303 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; inorganic wastes containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150106 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND

PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); mixed packaging

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

refer to chapter 6 - 8

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
lead massive [particle diameter >= 1 mm]

Restrictions on use (REACH, annex XVII):

Entry 30, Entry 75

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (amended by Regulation (EU) No 2020/878)
The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].
REACH 1907/2006 Appendix XVII, No (mixture): 63

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water hazard class (D): 1 - slightly hazardous to water

Additional information

Observe technical data sheet.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 6.

Rev. 1.0; 06.05.2015: Initial release
Rev. 1.1; 23.11.2016: Indication of changes - chapter: 1, 2, 3, 6, 7, 8, 15, 16.
Rev. 2.0; 17.04.2018: Changes in chapter: 2, 3, 15.
Rev. 2.1; 03.07.2018: Changes in chapter: 3.
Rev. 2.2; 25.09.2018: Changes in chapter: 2.
Rev. 3.0; 17.02.2023/JTH: Changes in chapter: 1 - 16.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS: Chemical Abstracts Service
CLP: Classification, Labelling and Packaging of substances and mixtures
DNEL: Derived No Effect Level
d: day(s)
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European LIst of Notified Chemical Substances
ECHA: European Chemicals Agency
EWC: European Waste Catalogue
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
h: hour
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect concentration
NLP: No-Longer Polymers
N/A: not applicable
OECD: Organisation for Economic Co-operation and Development
PNEC: predicted no effect concentration
PBT: Persistent bioaccumulative toxic
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
REACH: Registration, Evaluation, Authorisation of Chemicals
SVHC: substance of very high concern
TRGS: Technische Regeln für Gefahrstoffe
UN: United Nations
VOC: Volatile Organic Compounds

Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Repr. 1A; H360FD	Calculation method
Lact.; H362	Calculation method
STOT RE 1; H372	Calculation method

Relevant H and EUH statements (number and full text)

H360FD	May damage fertility. May damage the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.

Further Information

Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:
Health hazards: Calculation method.
Environmental hazards: Calculation method.
Physical hazards: On basis of test data and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)